

San Mateo Ferry
Seattle
King County
Washington

HAER No. WA-17

HAER
WASH,
17-SEAT,
9-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
NATIONAL PARK SERVICE
U.S. DEPARTMENT OF THE INTERIOR
P.O. BOX 37127
WASHINGTON, D.C. 20013-7127

United States Department of the Interior
National Park Service
Washington, D.C. 20240

HAER WASH, 17-SEAT, 9-
HISTORIC AMERICAN ENGINEERING RECORD
SITE DATA FORM

STATE	COUNTY	TOWN OR VICINITY
WASHINGTON	KING	SEATTLE

HISTORIC NAME	HAER NO.
SAN MATEO	WA-17

SECONDARY OR COMMON NAMES

COMPLETE ADDRESS (DESCRIBE LOCATION FOR RURAL AREAS)

afloat, Seattle

DATE OF CONSTRUCTION	ENGINEER, BUILDER, OR FABRICATOR
1922	Bethlehem Shipbuilding Corp., San Francisco ,CA

SIGNIFICANCE (TECHNOLOGICAL AND HISTORICAL, INCLUDE ORIGINAL USE)

steam ferryboat employed on San Francisco Bay, and later on Puget Sound

STYLE (IF APPROPRIATE)

MATERIAL OF CONSTRUCTION (INCLUDE STRUCTURAL SYSTEMS)

hull: steel decks: wood superstructure: wood masts: steel

SHAPE AND DIMENSIONS (SKETCHED FLOOR PLANS ON SEPARATE PAGES ARE ACCEPTABLE)

length: 216.70 ft (registered)	overall length: 235.00 ft (hull)	extreme breadth: 42.10 ft gross tonnage: 1782 net tonnage: 1120
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EXTERIOR FEATURES OF NOTE

INTERIOR FEATURES OF NOTE (DESCRIBE MECHANICAL SYSTEMS, MACHINERY OR EQUIPMENT)

MAJOR ALTERATIONS AND ADDITIONS WITH DATES

not known

PRESENT CONDITION AND USE

not known

OTHER INFORMATION AS APPROPRIATE

SOURCES OF INFORMATION (INCLUDING LISTING ON NATIONAL REGISTER, PROFESSIONAL ENGINEERING SOCIETY LANDMARK DESIGNATIONS, ETC.)

all information from International Register of Historic Ships, Naval Institute Press,
Sea History Press, copyright 1985 World Ship Trust Norman J. Brouwer, author

COMPILER, AFFILIATION

DATE

Bill Lebovich, HAER

July 14, 1988

Addendum to:

SAN MATEO FERRY
South End of Lake Union
Seattle
King County
Washington

HAER No. WA-17

HAER
WASH
17-SEAT,
9-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

**HISTORIC AMERICAN ENGINEERING RECORD
ADDENDUM TO
SAN MATEO FERRY**

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Data page 1 was previously transmitted to the Library of Congress

Location: South end of Lake Union, Seattle, King County, WA. Berthed on U.S. Naval Reserve Property adjacent to Northwest Seaport and the Maritime Heritage Center.

Year Built: 1922

Shipyard: Bethlehem Steel's Union Yard, San Francisco, CA

Build For: Ordered by 6 Minute Ferry but finished for Southern Pacific Railroad

Present Owner: Northwest Seaport
1002 Valley Street
Seattle, WA 98109

Present Use: Historic Museum Vessel although unable to be viewed or maintained

Significance: Last remaining steam powered auto ferry of a once larger fleet on the West Coast. Also the last steam powered auto ferry left in the United States. The vessel was listed on the National Register of Historic Places on April 7, 1971.

Report Prepared by:

Patricia E. Hartle
Former Marine Telephone Operator
Retiree, American President Lines, Ltd
Board of Governors, Puget Sound Maritime
Historical Society
Board of Directors, Northwest Seaport

Ron Burke
Former employee as Oiler aboard SAN MATEO during Black Ball Line days and Washington State Ferry System.
Currently Architect for Reese Associates
On Editorial Board, "Sea Chest Journal"
Maritime Historian, published in "Sea Chest Journal" for Puget Sound Maritime Historical Society and other maritime publications

Date: July/August 1991

SAN MATEO FERRY
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HULL NUMBER 222386
BUILT 1922, BETHLEHEM STEEL CO. UNION YARD SAN FRANCISCO, CA
OPERATED BY SOUTHERN PACIFIC, SOUTHERN PACIFIC-GOLDEN GATE
FERRIES, LTD., PUGET SOUND NAVIGATION (BLACK BALL LINE)
WASHINGTON STATE FERRY SYSTEM
STEEL HULL, WOOD DECKS, WOODEN SUPERSTRUCTURE
GROSS TONNAGE 1782 NET TONNAGE 1120
DISPLACEMENT TONNAGE - LOAD 1340 TONS - LIGHT 1076
REGISTERED LENGTH 216.70 FT. (66.06 M)
OVERALL LENGTH (HULL) 235.00 FT. (71.63 M)
EXTREME BREADTH 42.10 FT (12.83 M)
DRAFT 17.3 FT.
TRIPLE EXPANSION ENGINE, 19" X 32" X 54" X 36" 1400 HP
TO PUGET SOUND, 1940

BRIEF OVERVIEW: SAN MATEO was built in San Francisco 1922 and operated by Southern Pacific-Golden Gate Ferries until the Oakland Bay Bridge was completed in 1938. The SAN MATEO was then purchased by Puget Sound Navigation Company and moved north to operate on Puget Sound in Washington State in 1941. Ownership was transferred to the Washington State Ferry System June 1, 1951, when Washington State took over operation of the Black Ball Line of Puget Sound Navigation. She was officially retired in September 1969. Ownership was transferred to the Washington States Park Department in 1970. Historic Seattle became owner in 1976, transferring ownership to Northwest Seaport in 1978.

In 1919, the Association of Mare Island Navy Yard Employees, which had been successful in their operation of the Vallejo-Mare Island Ferry, decided to expand its operation and establish a ferry connection across the Carquinez Strait to Vallejo. They were able to obtain terminals at Morrow Cove on the north and Crockett on the south. This gave them a route only a third as long as their competition. To publicize their short running time, their new name became "Six Minute Ferry."

Because of their immediate success, Six Minute Ferry ordered three new ferry boats from Bethlehem Steel's Union Yard in San Francisco. This yard specialized in vessels with steel hulls and a wooden house structure. SAN MATEO was one of the newly ordered ferry boats.

Unfortunately for Six Minute Ferry, an earth slide wiped out the Morrow Cove terminal. The federal government also began an investigation of the Association of Mare Island Employees questioning the legality of their operation of the ferry system

in direct competition with private enterprise. The question was that it did not connect directly to federal property. The Association was then dissolved and Six Minute Ferry ceased to operate.

Southern Pacific bought the three ferry boats under construction at Union Yard. The SAN MATEO was completed in 1922.

In 1929, the car ferries were transferred to a separate company, The Southern Pacific-Golden Gate Ferries, Ltd. This company was formed when Southern Pacific bought out the stock of Golden Gate Ferries. The name was preserved in the merger as Southern Pacific-Golden Gate Ferries, Ltd. Southern Pacific had retained only the passenger and train operations.

SAN MATEO was quite beautifully appointed. To reach her passenger deck one would climb from either end of a long stairwell divided into two sides. Staircases had hardwood railings with turned wood stanchions artistically tooled. She had wooden mahogany benches curved like church pews going around the interior of the mid-ship house as it goes up through the top deck of the ferry.

There were stained glass clerestory windows surrounding the upper two feet of the passenger area. These windows were cut in both standard rectangles as well as curved shapes to accommodate the beautifully curved 12 inch mahogany ceiling molding. The passenger deck had very high ceilings created by the clerestory windows protruding up two feet higher than the normal deck height allowing sunlight to fill the passenger area no matter what direction the ferry was traveling.

This passenger deck had a small galley area with a bar front. A brass foot rail followed the counter. High chairs (stools) were at this bar front.

The women's restroom was on the passenger deck complete with four toilets and two sinks. It was not a large accommodating area and had no private women's waiting area in this room.

In the main passenger waiting area, the benches were placed back to back with additional benches against the fore and aft walls. Outside on the open decks, there was passenger seating with built-in curved benches following the curved structure of the mid house.

Life preservers were stowed under the benches for the passengers in case of emergency.

This deck housed the four lifeboats secured on davits. Each life boat would hold 12 persons.

To reach the wheelhouse, the crewmen would have to climb a stationary vertical ladder and walk across the top of the ferry then climb four steps into the wheelhouse. At the rear of each wheelhouse were two small rooms at roof level. These rooms were for the convenience of the Mates or Captain if the ferry tied up for the night at a port other than the officer's home port. During the war years when SAN MATEO was on the Seattle-Manchester run, she was tied up at night in Manchester and any Mate or Captain who lived in Seattle would sleep aboard the ferry in one of these small sleeping rooms. The rooms had a sink and small closet but no toilet.

Space for the unlicensed crew was at the Number 2 end just below the car deck. These rooms had built-in bunks, no windows and were less than spacious.

The men's toilet was inconveniently located on the car deck at the Number 1 end right at the base of the stairwell. This made a very long trek for the Captain, Mates or persons from the wheelhouse in times of need. The men's toilet room had three booths and three latrines.

The dual wheelhouse structures were fitted with two steering wheels. One wheel, a brass wheel with beautiful wood spokes, was so large that a slot to accommodate it was cut in the floor. This five foot wheel was intended to be used for manual steering. Her second wheel, a much smaller one, mounted on a separate stand, was connected to the steam steering system. This was the one always used. The other manual system was simply available in case of failure of the steam steering system.

She had a generous quantity of brass hardware throughout the vessel including door handles, hinges, and foot rails. In the wheelhouse, the manual speaking tube to verbally speak orders to the engine room was brass.

She was known for the two beautiful three-note steam chime whistles.

Watertight bulkheads divided the hulls into six compartments. The engine and fire rooms were in separate compartments. Fuel and water tanks were built into the sides of the hull in the engine and fire room compartments.

The car deck had 4 X 4 Douglas Fir decking over steel framing and was sponsoned out nine feet with steel angle braces. This decking was overlaid with a Port Orford Cedar wearing surface.

Life jackets and life rings were also stowed on the car deck to be available for car passengers.

The metal construction extended up past the car deck. The side walls of the car deck or screens, as it has been called, were metal with window frames and metal dividers as if glass should have been installed. These were in effect open windows on the car deck level.

The deck house above the car deck was wood frame, sheathed with White Cedar tongue and groove paneling inside and out. The upper decks were White Cedar overlaid with canvas.

The machinery and boilers of the SAN MATEO had label plates (1) to identify them as having been built for the U.S. Shipping Board in World War 1. It is thought that they were originally intended for the 202 wood cargo ships built in West Coast yards for the Emergency Fleet. Most of these (2) ships were never completed at war's end, hence, there was an abundance of surplus equipment available in 1922. Similar to the Liberty Ships of World War II, the Emergency Fleet components were designed for ruggedness and simplicity and (3) capable of being manufactured in many small machine shops and boiler works. As such, the machinery was 20 to 30 years behind the times and would be typical of any small freighter built at the turn of the century in most parts of the world.

The main engine was built by the Llewellyn Iron Works of Los Angeles in 1919. The cylinders are supported on six cast iron box shaped columns. The Stephenson Link Valve Gear is operated by a steam operated reversing ram. The big slide valve on the low pressure cylinder is assisted in its up and down movement by a lifting cylinder. The main engine is oiled by gravity fed wick boxes and by hand oiling. The condenser is supported on its own framing independent of the engine columns.

The circulating pump is centrifugal, driven by a single cylinder vertical engine. The air pump is an independent vertical unit

with two pump cylinders. The two feed pumps are vertical duplex units mounted against the forward engine room bulkhead. All other pumps are horizontal simplex or duplex types typical of the era. Two 25 KW generators are driven by vertical engines with closed base and pressure lubrication.

The boilers are arranged parallel to the centerline of the hull but offset five feet to the starboard side. The fuel oil pumps, heaters, and firing aisle are on the port side. The water tube boilers were built by the Llewellyn Iron Works. They have straight tubes and a cross drum and operated at 200 pounds per square inch.

The Emergency Fleet ships were intended to be coal fired. These boilers were adapted to oil firing by removing the four furnace and ashpit doors and welding steel plates over the openings. Three oil burner units were then installed in each boiler. The SAN MATEO was famous for the clouds of black smoke that they produced when raising steam on cold boilers. In the early fifties, the SAN MATEO's original mechanical burners were changed to the steam atomizing type to help alleviate the problem.

The vessel had ten foot diameter, four-bladed propellers on 10 inch diameter shafts. Two steering systems were installed, one manual and one steam. The two steering engines were mounted under the fore deck at each end of the ferry.

SAN MATEO served mostly on the San Francisco/Oakland service until 1939 when completion of the Oakland Bay Bridge opened the way for automobiles to drive to East Bay faster and at less toll than the ferry had to charge. Even lowering the ferry tolls did not offer competition to being able to drive across the bay.

All the ferries of Southern Pacific-Golden Gate Ferries were offered for sale in 1939. In 1941, Puget Sound Navigation Company, owned by Captain Alex Peabody, bought SAN MATEO and four other ferries for \$240,000. He immediately sold off the CALISTOGA, leaving four to come north and run in Puget Sound.

SAN MATEO was towed north from San Francisco by the tug GOLIAH of Seattle's Puget Sound Tug & Barge with Captain Ray Quinn as Master.

SAN MATEO was used on a variety of runs, largely part time. During the war years from 1941, she was assigned the permanent run from Seattle to Manchester serving the large number of

Bremerton war industry commuters. In 1947, she was on the Seattle-Suquamish run. In 1948, after the waterfront strike and a lengthy dispute with Kitsap and Snohomish Counties, SAN MATEO was taken from winter lay-up and placed on the Edmonds-Kingston run. She stayed there from June until September and then returned to winter lay-up.

Washington State took over operation of the ferry system from Puget Sound Navigation on June 1, 1951. SAN MATEO was included in the sale of vessels to the State.

In 1951, a consultant's report prepared for Washington State Ferries and Puget Sound Navigation, jointly recommended that her power plant be converted to diesel/electric by using the machinery of the destroyer escort MITCHELL which was a part of the Puget Sound/Washington State purchase package. However, the State decided that it was not economically feasible to convert this 30 year old ferry with a limited 60 car capacity.

In 1952 and 1953, SAN MATEO was an extra vessel assigned to the Fauntleroy-Vashon-Southworth run. During the summer of 1955, she was on the Bremerton-Seattle run.

SAN MATEO suffered from erratic operation of the ferry's reversing ram causing her to hit the Fauntleroy ferry dock. This required the Washington Ferry System to do a refit.

June 4, 1958 was a tragic day for the ferry SAN MATEO. While approaching the Fauntleroy ferry dock, her engines failed to reverse and she crashed into the dock which was undergoing repairs. A construction worker on the dock was crushed to death. The cause of the accident was determined to be caused by the engine becoming steam-bound; a situation in which the steam pistons become locked. A second theory was that the reversing ram failed to throw the links over.

After that time she was an extra service vessel for the Edmonds-Kingston and the Seattle-Winslow runs working mostly weekends and holidays until her retirement, Labor Day, September 1, 1969. During most of her life on Puget Sound, she was a summer ferry spending two-thirds of her time in winter lay-up.

On her last trip between Seattle and Winslow, her loyal riders bought round-trip tickets and filled her to capacity for the final trip. They always enjoyed watching the machinery work and seeing for the last time the elegant interior.

Remembering back on her operational days, one of her former Captains, Captain Grahame F. Shrader, wrote in the Seattle Times Newspaper on October 4, 1970, remembering her individual behavior, "She was not a real joy to operate. Because the SAN MATEO has a solid shaft running the entire length of the hull with a propeller on each end, she actually pulls herself through the water as much as she pushes."

The normal effect of propeller torque (while pulling) is to move the vessel to the right. When sufficient headway is gained, this tendency is mostly overcome by rudder action (Note 4). When maneuvering with little or no headway, the SAN MATEO would move crab-wise, a natural result of her design.

Only a few double-ended ferries were built with this type of propulsion since better means were developed. The most satisfactory being electrically driven propellers which permit the power to be reduced or entirely shut-off on the forward end.

Landing one day at Colman Ferry Terminal in Seattle, the Captain rang for "half astern" but instead of slowing, the SAN MATEO picked up speed and a glance at the engine direction indicator beside the compass confirmed the obvious and horrifying fact that the engine was turning the wrong way.

Because the intervening distance was so short, any evasive action was out of the question and a moment later the SAN MATEO was firmly wedged in the slip, the engine still turning ahead and the telegraph on "half astern." Since they lacked sufficient room to work up any appreciable speed, damage to the ferry slip was negligible.

It was not the first such incident involving the SAN MATEO. The problem was understandable, since the position of the bow and stern change each trip and the engine turns "ahead" on one crossing and "astern" on the return. It was very easy for the engineer to lose his sense of direction down in the engine room where there is no visibility.

Within 24 hours SAN MATEO had a safety device installed on the engine controls which caused an alarm bell to ring if the position of the reversing gear did not agree with signal on the pilot house (wheelhouse) telegraph.

The SAN MATEO had a high degree of stability and was known as a "good sea boat." This was due in part to her lofty smokestack. Originally having a tendency toward top-heaviness, it was necessary to install ballast to lower her center of gravity. Southern Pacific had put 50 tons of railroad brakeshoes into her hold for ballast material.

This added weight, together with the boilers, boiler casing, which rise up into the passenger deck and engine, plus a steel hull, made her heavier than most ferry boats of comparable size and gave her unusual stability. Even during her transit up the coast from San Francisco, she had a minimum of pitching and rolling.

SAN MATEO remained in idle storage for a year. In 1970, the Washington State Department of Parks & Recreation purchased her for \$20,000 to preserve her as a floating maritime museum or interpretive center and planned to have her berthed on the Seattle Waterfront.

During this time period (April 7, 1971) SAN MATEO was placed on the National Register of Historic Places. The Statement of Significance was prepared by Mrs. Ann Leake, Executive Coordinator of Save Our Ships (now Northwest Seaport).

Unfortunately, administrative problems arose and amidst disputes within the State political system, the ferry sat idle at Eagle Harbor for five years. As a result, electrolysis eroded her hull plates requiring drydocking and \$250,000 to repair the damage. Her hull was fiberglassed and the engine room was opened up to allow public viewing of the engine. The Parks Department then requested the State legislature to give them an additional \$850,000 for restoration of the wooden upper structure but was refused.

Still idle and deteriorating at Pier 39 in Seattle, she narrowly missed being part of a maritime accident in 1974. The 590 foot cargo vessel MARIA RUBICON of Sanko Line plowed into the west end of Pier 39 tearing off about 50 feet of the pier. Fortunately, SAN MATEO was moored to the side and was not struck by the ship or the flying debris.

In 1976, SAN MATEO was acquired by Historic Seattle Preservation Authority. March 7, 1977, the City of Seattle granted her landmark status. Historic Seattle conducted a feasibility study

showing how the vessel could be used as a Puget Sound maritime interpretive center. The group organized volunteers and completed the first phase of restoration to stop deterioration of the wooden superstructure.

SAN MATEO was moved to the south end of Lake Union at Waterway Three in 1977 by Historic Seattle, leasing moorage from the Naval Reserve. Historic Seattle had secured the boat to hold her until Northwest Seaport would be able to take on management of the SAN MATEO. Ownership was transferred to Northwest Seaport on October 11, 1978. Northwest Seaport had plans to create Seaport Park at the south end of Lake Union in Seattle. The ferry provided space for the group to have an office aboard and would have excellent space for historical displays. One can envision automobiles of the 30's and 40's sitting on the car deck waiting for the ferry to back away from the dock.

In 1979, Northwest Seaport moved their offices from Kirkland to be aboard the SAN MATEO. This would allow them to begin restoration while using the vessel as "home office."

They established offices, a gift shop and a museum to display their collection of historical maritime artifacts. The spacious interior allowed them to hold their annual meeting in 1982 aboard the vessel. Office telephones were installed.

During the early 80's, McDonald's corporation came forward as being interested in establishing a hamburger restaurant aboard the boat. They would restore the vessel and lease one half of the car deck. The balance of the boat would be available for Northwest Seaport's usage for historic displays. They only required a firm commitment of moorage for a minimum of 20 years from the City of Seattle. This location could be either at south Lake Union or on the central Waterfront.

Working with the Seattle Park Department and the City of Seattle was not successful in securing permanent moorage. The Park Department felt that the ferry was too big and blocked water views. The downtown waterfront businesses were not pleased at having a ferry tied up permanently taking up large amounts of waterfront moorage.

In May of 1985, the Naval Reserve notified Northwest Seaport that they would no longer be allowed to tie up the vessel at the Navy Reserve property. McDonald's was conducting a survey of the SAN MATEO during this time but with the lack of permanent moorage, no

firm commitment could be signed. Because the vessel was moored at Navy property, the U.S. Navy had liability concerns in the event of accidents. The Navy restricted access to the SAN MATEO. Northwest Seaport had to find a new berth for SAN MATEO or be effectively locked out of their own vessel. An alternate berth could not be found. No longer could volunteers go aboard to do the necessary maintenance. The wood of the ferry began to rot. Wind and rain effectively took their toll.

Vandals have completed what weather did not do. While Northwest Seaport could not go aboard to maintain, unauthorized persons have indeed boarded from the waterside and stripped the SAN MATEO of anything they could pry, chisel or cut off.

Summary of current status:

After being surplused by the Washington State Ferry System in 1969, various governmental agencies attempted, without success, to turn the vessel into a maritime museum before turning it over to NWS in 1978.

Northwest Seaport then spent over ten years attempting to restore the SAN MATEO, including a plan for the McDonald's Corporation to provide part of the financing in return for use of a portion of the vessel as a floating restaurant. This plan, as with every other plan for the vessel, required that a feasible moorage be located; however, another moorage could not be found and the U.S. Navy Reserve, where the ferry had been moored for many years, ordered it removed.

For the last three years, NWS has attempted, also without success, to give the vessel to another organization which had the ability to find a new moorage and to rehabilitate the ferry. Meanwhile, the vessel's deteriorating condition and the Navy's continuing insistence that the ferry be removed from its site have left NWS no alternative but to have the vessel scrapped.

At the time of this research, Northwest Seaport was seeking bids for the purpose of scrapping it. The bid requires that the purchaser return the main steam engine to NWS for a museum exhibit.

Footnotes:

1. SAN MATEO's label plates are missing but the information has been verified from SHASTA, a sister ship to the SAN MATEO now berthed in Portland, Oregon as the restaurant RIVER QUEEN.
2. This information is from "international Marine Engineering Magazine", 1917 to 1919 issues. Bound copies are available at the Seattle Public Library.
3. Ron Burke was an "Oiler" in the SAN MATEO, working summers from 1949 to 1954 during his college years. Much information regarding the origin of the engine was from long time Chief Engineers familiar with both World War 1 and II vessels.
4. Information on the effect of propeller torque was secured during oral interviews with Captain Grahame Shrader on July 26, 1991.

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